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## REMARKS

Claims 1-16 and 18-21 and 23-24 are pending herein. The claims have been amended to better define the invention, based upon the teachings of the specification as filed. Support for the claim amendments made herein come from the following paragraphs of the published application:

pH range – see paragraph [0018]

surfactant compounds – see paragraph [0017]

5,5-dimethylhydantoin – see paragraph [0002] and the Examples

Accordingly, the amendments made in this response do not constitute the addition of new matter. Approval of these amendments is respectfully requested.

Claims 1-16 and 18-21 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed, for the following reasons:

For support of the “preformed complex” of silver with hydantoin or substituted hydantoin, see the text from paragraph [0019] of the published application, which reads as follows:

Some Examples of plating solutions of this invention are given as follows. In each of the Examples, silver is added as a *preformed complex* formed by the reaction of silver oxide with hydantoin, or with a substituted hydantoin, such as 5,5-dimethyl-hydantoin, as appropriate. No foreign ions are thus introduced. Other substituted hydantoin compounds can likewise be employed. Methyl-hydantoin, other alkyl-hydantoins, other dialkyl-hydantoins, and the like are useful herein. See the hydantoin compounds of U.S. Patent No. 5,750,018 for additional examples. [*emphasis added*]

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For support of the premanufactured aqueous solution of a nonprecipitating electrolyte salt, with excess hydantoin, and the premade silver-hydantoin, see the text from paragraph [0015] of the published application, which reads as follows:

As used herein, the terms "nonprecipitating electrolyte salts" refer to salts of acids the silver salts of which are soluble. Examples of such nonprecipitating electrolyte salts would include the sodium, potassium, or ammonium salts of sulfamic, hydrofluoric, nitric, fluoboric, glycolic and lactic acids. Such materials do not cause film formation at the anodes, and in some cases promote anode corrosion. *Additionally, the silver-hydantoin complexes of this invention are premanufactured in that form to the plating solution, together with an excess of the hydantoin and the nonprecipitating electrolyte salt. [emphasis added]*

Reconsideration and withdrawal of this Section 112 rejection is respectfully requested.

Claims 1-16 and 18-21 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In view of the amendments made to the claims herein, this rejection may be reconsidered and withdrawn. Such action is respectfully requested.

Claims 1-6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over JP 11-302893 ('893). This rejection is respectfully traversed for the following reasons:

JP '893 includes both broad teachings as well as specific teachings. The Examples are the most instructive teachings of all, as they reflect the actual work done by the inventors, not simply the broad pronouncements of them or their attorneys. The broad teachings relied upon by the Examiner are not enabled, but the Examples are. Moreover, the broad teachings are not reliable for making conclusions regarding the obviousness of the present invention, but the Examples are.

In all of the Examples of JP '893 in which 5,5-dimethylhydantoin is included (Applicant's preferred hydantoin compound), it is accompanied by a large stoichiometric

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excess of nicotinic acid, which is one of the class of pyridine compounds which the '893 inventors consider to be an active complexing agents for silver. In half of those Examples, insufficient 5,5-dimethylhydantoin is included to form the silver-hydantoin complex at all.

In coordinate complexes with organic ligands, monovalent silver displays a coordination number of two. Thus complexes of silver (I) with pyridine, say, include two pyridine moieties bound to each silver (I) ion. The same is true of nicotinic acid or of 5,5-dimethylhydantoin. In performing a chemical reaction it is common practice to employ a slight excess of one reagent in order to ensure completion of the reaction. Large excesses of a complexing agent, however, are not incorporated into the reaction product, but instead remain unreacted in the reaction mixture, where they compete with and act to prevent complexation by any other reagent which may be introduced.

Applicant submits that this "excess reagent competition" is true of the examples given in JP '893.

5,5-dimethylhydantoin is included as a constituent in Examples 2, 4, 7, 8, 9, and 10 of JP '893. Calculating from an atomic weight of 107.87 for silver and molecular weights of 123.11 for nicotinic acid and 128.13 for 5,5-dimethylhydantoin, one sees that Examples 2, 9, and 10 do not include sufficient 5,5-dimethylhydantoin to form the presently claimed silver bis (5,5-dimethylhydantoin) complex.

In Examples 4, 7, and 8, the ratio of 5,5-imethylhydantoin to silver is 2.208 to one, which, while sufficient to form the silver bis (5,5-imethylhydantoin) complex, it is NOT sufficient to compete effectively with the excess amount of nicotinic acid present in those examples – which amounts to 9.201 times, on a molecular equivalent basis, the amount of silver present.

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Assuming that the stability constants of the 5,5-dimethylhydantoin and nicotinic acid complexes of silver are even within a single order of magnitude of each other, it is difficult to believe that the claimed silver-hydantoin complex is effectively formed in ANY of the Examples of JP '893.

NOTE: The quantities shown in the first row of the Examples of JP '893 are grams per liter of silver nitrate. In making these calculations, the percentage of 63.50 was used to calculate the equivalent quantities of pure silver.

Accordingly, the rejected claims of the present invention are not obvious based upon the teachings of JP '893.

Claims 7-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over JP 11-302893 ('893) as applied to claims 1-6 above, and further in view of Soutar et al. (US Patent No. 5,955,141). This rejection is respectfully traversed for the following reasons:

As discussed at Pages 5-6 of the Final Rejection, the Examiner is relying upon the teachings of Soutar for the following purpose:

One having ordinary skill in the art is simply substituting the potassium hydroxide disclosed by JP '893 with the nitric acid disclosed by Soutar for the purpose of adjusting the pH of the plating solution without generating a precipitate.

However, the change from using potassium hydroxide (a base) to nitric acid (an acid) would not be suitable for maintaining the pH of the electroplating bath within the claimed basic pH range of 9 to 13, and preferably 10-11.

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Given that JP '893 alone teaches adjusting the pH using potassium hydroxide, the addition of the Soutar reference is simply not necessary – and is thus not relevant.

Claims 12-16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over JP 11-302893 ('893).

JP '893 has been distinguished above. It neither teaches nor suggests the invention claimed herein – when one considers the full teaching of the reference. Complexes of silver and a hydantoin compound, as claimed herein, are simply not possible from the chemistry taught in JP '893.

Claims 18-22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over JP 11-302893 ('893) as applied to claims 12-17 above, and further in view of Soutar et al. (US Patent No. 5,955,141).

JP '893 has been distinguished above. It neither teaches nor suggests the invention claimed herein – when one considers the full teaching of the reference. Complexes of silver and a hydantoin compound, as claimed herein, are simply not possible from the chemistry taught in JP '893.

Given that JP '893 alone teaches adjusting the pH using potassium hydroxide, the addition of the Soutar reference is simply not necessary – and is thus not relevant.

Entry of the present amendment for purposes of appeal is respectfully requested. Entry is necessary because Applicant believes that the amended claims are now in condition for allowance notwithstanding the cited art and the Examiner's arguments thereunder.

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The present amendments were not submitted at an earlier date as the Examiner's rejections were believed to have been fully met by the amendments and remarks made in the response to the last Office Action. Thus, this response represents the Applicant's only opportunity to make the present amendments and remarks a part of the record in this application.

Entry is finally believed proper at this time because the amendments do not raise any new issues that would require further consideration and/or search, since they merely conform in scope to the claims already adequately and properly searched by the Examiner and they do not introduce any new matter.

#### **FEE AUTHORIZATION**

Please charge any fees due in connection with this filing to our Deposit Account – No. 19-0733.

#### **CERTIFICATE OF FACSIMILE TRANSMISSION**

The undersigned hereby certifies that this correspondence was submitted by facsimile in the USPTO on the date shown on Page 1.

Respectfully submitted,

  
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